ABSTRACT

Telomerase reverse transcriptase is part of the telomerase complex responsible for maintaining telomere length and increasing the replicative capacity of progenitor cells. Telomerase activity is turned off in mature differentiated cells, but is turned back on again in hyperplastic diseases, including many cancers. This disclosure provides regulatory elements that promote transcription in cells that express telomerase reverse transcriptase (TERT). Oncolytic viruses are described, in which a toxin or a genetic element essential for viral replication is placed under control of the TERT promoter. As a result, the virus replicates preferentially in cells expressing TERT, and selectively lyse cancer cells. The viral constructs of this invention hold considerable promise for the treatment of previously intractable malignancies.

DOCKET ALARM